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Abstract

It is a well-established fact that mothers' labour force participation reacts differently to different types of family benefits. It is also already well-known that cultural and religious factors have an impact on their labour force participation. But does the labour force reaction to family benefits differ among more religious mothers? In this paper, I analyse how both factors – benefits and religiosity – interact when it comes to the decision concerning labour force participation. Firstly, I present a theoretical model which predicts that this difference exists. Secondly, I test this prediction in a sample of pooled cross-section data from 10 OECD countries using different measures to assess the extent of religiosity. There is evidence that religious mothers react less than non-religious mothers to increases in family benefits. I also find important differences among various religious affiliations. These results imply that trends in religiosity should be considered when designing labour market policies.

JEL Code: J21, H20, Z10, Z13.

Keywords: Female labour force participation, public benefits, culture, family attitudes.

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1 Introduction

Labour supply of women has increased remarkably in the last few decades in the OECD (average increase from 56 to 73 percent 1981-2003). Much of this is due to rising employment rates of mothers with children. I am therefore especially interested in mothers because finding the right family-work-balance is still the biggest challenge for women. They work more in part-time jobs and at home than men, independent of factors like education or marital status.

Mothers show different reactions in the labour market depending on what kind of public benefit is invested in their families. Cash benefits should support families with direct financial help. Investments in kind, like child care institutions, are seen in most of the OECD countries as the key investment to get mothers back into the labour market after child-birth. In OECD countries there is a high cross-country variation of these family benefits as Figure 1 in the Appendix shows. The USA is one of the countries investing least (0.7 percent of GDP annually) with a female working rate of 76 percent in contrast to top country in the OECD which invested 3.5 percent of GDP annually in its families with a female working rate of 87 percent in 2003. This means that all rich countries do not necessarily spend a huge amount of money on their families and that there may be a positive correlation between investment and female working participation.

Culture also plays an important role with regard to labour force participation. Regarding, for example, the ratio of working to stay-at-home mothers depending on religiosity in 10 OECD countries, it is noticeable that there is a high variation across countries (see Figure 2 in the Appendix). In Sweden, for example, the ratio differs remarkably between religious and non-religious mothers in contrast to New Zealand where these two types of mothers participate nearly in the same proportions in the labour market. In nearly every country, mothers work considerably less when they have religious attitudes. In Finland, for example, mothers work 19 percent less when they are religious in contrast to USA with a difference of 5 percent.

A missing contribution in literature is the analysis of how both factors - benefits and culture - interact when it comes to the decision concerning labour force participation. Therefore, I use the example of cash and in kind benefits and the cultural variable religiosity. The hypothesis is that there is a difference in labour market behaviour between religious and non-religious mothers when the state provides monetary or non-monetary incentives for families.

The first key finding in this context is the more negative behaviour of religious mothers

in comparison to non-religious mothers because of increasing cash benefits when it comes to the decision to work. Living in a Protestant area changes this influence. The second important key finding is that religious mothers decide less often in favour of labour force participation than non-religious mothers if benefits in kind are increased. All these effects are especially found for mothers between 25-40 years.

My paper is organized as follows. Section 2 contains some background information about the current discussion of the topic. I also provide a simple theoretical model in section 3 to get an intuitive idea of the topic. Section 4 presents the data and method, i.e. a short description of the dataset, a presentation of the econometric model used and finally a description of the chosen variables. Section 5 examines the empirical results, differentiated in a baseline model and further investigations. Section 6 concludes with some political implications.

2 Related Literature

In the traditional neoclassical theory of labour supply the individual chooses between consumption goods and leisure. This consumption choice can be transformed into a set of different other choices like market work, home production and leisure. Gronau (1977), for example, presented a model where individuals maximise the amount of commodities. It shows that an increase in income reduces market work, leaves home production unchanged and increases leisure. In his model, an increase in the number of children is associated with a transfer of time to child-related activities by increasing time at home.

Algan and Cahuc (2005) provided an intuitive labour supply model including a family good, which is a composite of a good purchased at home and leisure time that spouses spend together in family activities. The model predicts that more weight on the family good decreases the labour supply of both men and women with a bigger impact on the labour supply of women because they devote more time to housework and to family activities. He does not specify reasons for putting more weight on family but moral concepts are conceivable.

Regarding empirical influences on female labour force participation there is also wide-ranging literature. Firstly, there is evidence of a positive elasticity of childcare support (benefits in kind) relating to womens' participation. Chevalier and Viitanen (2002) showed this for women in the UK, Gelbach (2002) for single mothers in the United States. Jaumotte (2003) confirms this positive impact in her study and points out that the effectiveness of publicly provided childcare can be reduced by the following two types of

substitution effects. On the one hand working mothers who previously bought private childcare services may substitute this with publicly funded childcare. On the other hand childcare subsidies may encourage working mothers to switch from unpaid and informal childcare arrangements to paid and formal ones. A full subsidisation of all non-parental care would induce a ten percent increase in employment of mothers, but a 19 percent increase in the use of paid-for childcare arrangements (Blau and Hagy, 1998).

Secondly, regarding the influence of cash investments like child allowances, Jaumotte (2003) found a clear negative influence on participation, especially on part-time participation because here the income effect is large enough to induce a reduction in participation.

There is also a lot of literature dealing with the influence of religiosity as cultural values on outcome variables like labour supply of women.

Guiso et al. (2006) gave a definition of culture including religious beliefs, which influence economic outcomes, transferred from previous generations, rather than having voluntarily accumulated.¹ This pattern of economic influence is also confirmed by Becker (1996) and Bisin and Verdier (2000). Hiller (2008) described religious norms as persistent and not much affected by agents' decisions. Referring to these papers it can be assumed that, for most individuals, religiosity is a time-invariant cultural norm. There is the well-established fact that religiosity often has a negative impact on female labour force participation (Alesina and Giuliano, 2007). Myers (1996) found evidence that non-working wives with working husbands increase their ability to transmit their religious beliefs and practises to their children which leads to a stricter sexual division of labour. This means that the work decision of a mother is a conscious decision based on moral standards. This religious behaviour also leads to closer family relationships (Brody et al., 1996).

The use of religiosity as a variable varies across studies. Guiso et al. (2003), for example, worked in their paper with different indicators of religiosity, like being atheist, brought up religiously, currently religious, and actively religious.

Moreover, there are several other factors which influence the female labour force participation and specifically that of mothers. These are only briefly referred to here. Higher education², better profession, higher income and a greater age all have a positive impact (Alesina and Giuliano 2007).

¹They define culture "as those customary beliefs and values that ethnic, religious, and social groups transmit fairly unchanged from generation to generation." (Guiso et al., 2006, p. 2).

²Following Becker's (1964) human capital theory, the likelihood of labour force participation should increase, the more people invest in their human capital.

Other factors like an increased number of children have a negative impact on the labour force participation of their mothers (Bonin and Euwals, 2002).

Furthermore, there is a positive correlation between the macro variable growth rate of GDP and female labour force rate, especially in OECD countries (Goldin, 1994).

Another influence on female labour supply comes from the unemployment rate in a specific country because of the discouragement hypothesis (van Ham et al., 2001). This hypothesis states that a person feels discouraged or demoralised by high regional unemployment and hence stays out of the labour market.

3 The model

This section assesses the possible influence of religiosity, family benefits and the interaction between both on a mother's decision to work and to care for her child. To analyse these determinants, the theoretical strategy is to investigate a household, which consists of a man and a woman as parents³ and a child in caring age. In this family, the man works full-time in the market in exchange for a net wage w_m which he invests completely in the budget of the family. Thus, total available time is standardized on a fixed amount of a man's market work m_m and leisure time l_m . For simplification it can be assumed that $m_m = 1$ due to the low substitution elasticity between work and leisure of the man. By contrast, the woman has more options. She shares available time between working in the market (denoted by m_w), time invested in child education e_w (which is consistent with household work)⁴ and leisure time l_w (Becker, 1985). Accordingly, female work equals total time, minus hours spent on child education, minus hours spent on leisure

$$m_w = 1 - e_w - l_w. \quad (1)$$

Abstaining from entering into the labour market means that the woman rejects the wage offered to her by the market. This wage loss is the price of her input in the production of child education or leisure (Gronau, 1973).

For producing a child education good E it is necessary that time is spent with the child by the woman or by another person. I assume that the family has access to a professional

³For simplification, I assume that the couple is married and has one child. The couple lives homogeneously, this means that both have the same life attitudes like religiosity (Bisin and Verdier, 2000).

⁴That includes all jobs during the day, which increase the quality of the child's upbringing such as educating the child, transferring personal qualities and values to the child, looking after the child etc.

nanny who takes care of the child for a certain time (denoted by e_n). E stands for building up human capital of the child.⁵ This good is discussed more in detail in the following sections.

Family utility u follows a Cobb-Douglas function and depends on consumption of a numeraire good c purchased in the market, woman's leisure time l_w , E as discussed above as well as child education directly in the following way

$$u(c, l_w, E, e_w) = \epsilon \ln c + \beta \ln l_w + \gamma \ln E + R \ln e_w$$

with $\epsilon = 1 - \beta - \gamma - R$. The parameters ϵ, β, γ reflect the different weights put on the respective goods ($\epsilon, \beta, \gamma > 0$). $R > 0$ is also a weighting factor, which measures the strength of religiosity of the woman. If a woman is religious ($R > 0$) there is additional positive utility from staying at home with the child because this enables the woman to educate her child by herself with her own moral concept (Meyers 1996). This implies that she values the marginal product of staying at home higher than that of working in the market or leisure (Gronau 1973). The higher R is the lower the weights are on the other goods, like consumption or leisure. If a woman is non-religious ($R = 0$) she does not put that much weight on the education of her child by herself and does not additionally benefit in the sense of rising utility from e_w .

3.1 Family cash benefits

In this first case it is assumed that there is full substitution of time spent with the child by the nanny or the mother. The child education good is represented by the following production function

$$E = e_n + e_w.^6 \tag{2}$$

The family receives cash benefits I of the respective state which increase the budget of the family directly. The family has the possibility to hire a nanny and pay for her

⁵I refer at this point to a definition of Sullivan and Sheffrin (2003): Human capital is the skills and knowledge gained by a person through education and experience, embodied in the ability to produce economic value.

⁶ e_w can be weighted by a productivity factor M ($M \in R^+$). At this point it is assumed that $M = 1$ because it is not the aim of the model to give answers to different productivity types of women. If $M > 1$ the woman can use her special relationship to the children in her work with the children.

services ($w_n > 0$).⁷

The budget constraint of the family is:

$$c + w_n e_n = w_w m_w + w_m m_m + I, \quad (3)$$

where w_w and w_n are the market wages of the woman and of the nanny. Market wages of the parents consist of gross wage earnings minus payments to the government (taxes, social security payments etc.). Market wage of the nanny is a gross wage.

Being interested in the opportunity costs of the family the constraint can be rewritten

$$c + w_w(l_w + e_w) + w_n e_n = w_w + w_m + I. \quad (4)$$

Thus, the households' maximization problem can be written as

$$\max_{\{c, l_w, e_w, e_n\}} \epsilon \ln c + \beta \ln l_w + \gamma \ln(e_n + e_w) + R \ln e_w$$

subject to the specific budget constraint.

The optimal working time of the woman can be derived from solving the maximization problem (the FOC's and the solutions of l_w , e_w and e_n see Figure 5 in the Appendix)

$$m_w = 1 - \frac{(w_m + w_w + I)(\beta(w_w - w_n) + R w_w)}{w_w(w_w - w_n)}. \quad (5)$$

According to the first and second order conditions, the model yields the following main predictions:⁸

- When family cash benefits are increased, the woman will invest less time in working. This is due to the income effect. She uses the available time for increasing the time she spends caring for her child and her leisure time.
- The model also predicts that increased religiosity of the woman has a negative effect on her labour force participation.

⁷I do without the inclusion of non-labour income other than I , because I concentrate on the analysis of increasing the budget by having an institutional benefit.

⁸To get a definite result the prediction is made under the following restriction: $w_w > w_n$, which means that the focus of investigation is put on mothers who are better educated than a nanny. It is especially interesting to analyse these mothers. Because of their high earning possibilities they have a real choice between hiring a nanny or staying at home. Combining the parameters extremely could still mean that $m_w > 1$. If this is the case this does not interfere with the general interpretation.

- Regarding the interaction between cash benefits and religiosity the model shows that religious mothers (with higher values of R) react more negatively with increased cash benefits towards their work decision than non-religious mothers. If a woman is non-religious she uses the money of the state for relatively more additional nanny hours in contrast to religious women who reduce the nanny hours despite the extra money.

3.2 Family benefits in kind

In this second case it is assumed that there is full substitution between time spent of the child in a public institution with a nanny or the mother. Public institutions are now provided because the respective government is supporting families with benefits in kind. This is consistent in the model with complimentary hours in a day-care center.⁹ This means that the child education good is now produced by

$$E = \bar{e} + e_n + e_w, \quad (6)$$

where \bar{e} stands for the amount of hours which are provided by the state.

In this case the budget constraint is changed into¹⁰

$$c + w_w(l_w + e_w) + w_n e_n = w_w + w_m. \quad (7)$$

Thus, the households maximization is now

$$\max_{\{c, l_w, e_w, e_n\}} \epsilon \ln c + \beta \ln l_w + \gamma \ln(\bar{e} + e_n + e_w) + R \ln e_w.$$

The optimal working time of the woman can again be derived from solving the maximization problem (the FOC's and the solutions of l_w , e_w and e_n see Figure 6 in the Appendix)

$$m_w = 1 - \frac{R(w_w + w_m - \bar{e}w_n(\frac{1-\gamma-R}{\gamma}))}{w_w - w_n} - \frac{\beta(\bar{e}w_n(1 + R/\gamma) + w_w + w_m)}{w_w}. \quad (8)$$

According to the first and second order conditions this model is able to predict the following correlations:¹¹

⁹Beyond that, the family can buy additional hours provided by the private sector, if necessary.

¹⁰The budget constraint follows the same scheme as the constraint in the previous chapter.

¹¹To get a definite result the prediction is made under the following plausible restrictions: (1) $w_w > w_n$,

- When publicly provided childcare is expanded mothers decrease their own caring time and the caring time of the nanny. This means that the working time of mothers increases as long as leisure is nearly constant.
- With increasing religiosity of the woman her working time decreases. This result is consistent with the predictions of the model above.
- When a religious woman is exposed to increasing publicly provided childcare she does not increase her working time as much as a non-religious woman. The monetary argument of free childcare does not totally convince her because of her moral standards. This implies that publicly provided childcare does not affect all mothers in the same way concerning their labour force participation.

4 Data and Method

4.1 Data Source

I combine data of an international survey at the level of individuals with separate macro data. On the microlevel, I use two waves of the World Value Survey (WVS) (1995-1998, 1999-2001), which provides especially key questions relating to religiosity beside socio-demographic variables.¹² On the macrolevel, I use the Social expenditure dataset (SED) of the OECD, which includes information about family benefits for all OECD countries. Other macro datasets (OECD, Worldbank and IMF) complement my dataset with socio-economic information of the countries studied.

By merging all these different datasets, I get a pooled cross-sectional dataset of individuals (1995-2000). My analysis includes the following 10 OECD countries: Australia, Canada, Czech Republic, Finland, Germany, New Zealand, Norway, Spain, Sweden, and the United States. In the main analysis mothers aged 25 to 40 are included. This ensures that these women are on the one hand in their prime age for work, meaning that their education is

which corresponds to the prediction of subsection 3.1; (2) $R < 1/2\gamma$: the more religious a woman is the less weight is put on the child education good provided by other people.

¹²The World Values Survey is a worldwide investigation of sociocultural and political change. It is conducted by a network of social scientists at leading universities worldwide. The data and insights produced by the WVS help one to understand the role of human values and beliefs in societal change. All interviews are conducted face to face by a local field organization and are supervised by academic researchers. Random probability samples are aimed for where possible.

finished and they are not retired yet. On the other hand rearing children is concentrated in the age span between 25 and 40 years (e.g. mean age of mothers at first childbirth varies between 25.1 in USA and 29.3 in Spain in 2005, OECD 2009).

In the case of incomplete categorical control variables I decided to use an extra dummy variable per categorical variable, which gives information about item non-response. This extra dummy represents the omitted category in the regressions. On the individual level the baseline dataset contains 3,584 observations.

4.2 Econometric Model

This section assesses the possible influence of religiosity, family benefits and the interaction between both on mothers' decisions to work. To analyse these determinants, the empirical strategy is to use a binary probit regression model. The dependent variable is a 0-1-variable which indicates whether or how mothers decide to participate in the labour market (for more information see 4.3).

The baseline estimation equation is

$$\begin{aligned}
 P(y = 1|X) &= \Phi(\alpha \cdot \textit{Benefits cash}_{ct} + \beta \cdot \textit{Benefits in kind}_{ct} + \gamma \cdot \textit{Strong religious ties}_{ict} \\
 &+ \delta \cdot \textit{Benefits cash}_{ct} * \textit{Strong religious ties}_{ict} \\
 &+ \epsilon \cdot \textit{Benefits in kind}_{ct} * \textit{Strong religious ties}_{ict} + C)
 \end{aligned}$$

$$C \equiv \pi \cdot C_{ict} + \rho \cdot C_{ct}.$$

i := factor varies between individuals

t := factor varies over time

c := factor varies between countries,

where

Φ is the cumulative distribution function for the normal distribution. Besides the listed variables of interest, C_{ict} is a vector of socio-demographic covariates of mothers and C_{ct} a vector of socio-economic factors of countries.¹³

¹³There are no country fixed effects included in the model due to the presence of country-level explanatory variables. Because of the limited number of points in time (1995-2000) there are no time fixed effects included in the model.

When the model is non-linear the interaction effect cannot be evaluated by looking at the sign, magnitude or statistical significance of the coefficient of the probit model. The correct marginal effect requires computing the cross derivative for continuous variables or cross difference for dummy variables (Ai and Norton 2003) which are described as composite effects. Therefore, I evaluate the composite effects of the variables of interest and the interacted variables at the mean, which ensures getting correctly computed marginal effects and significance levels of the interaction terms. The other covariates are also provided as marginal effects at the mean computed with the Stata command `mf`.

Since the data includes both individual characteristics of the mother as well as national indicators (and every country has more than one respondent), the data need to be clustered. Clustering at the country level ensures that standard errors are correct for the downward bias induced by aggregated determinants. The standard errors produced by this procedure are equally robust to heteroscedasticity.

4.3 Choice of variables

4.3.1 Variables of interest

Since the objective of the paper is to investigate the probability of mothers working, the first dependent variable "labour force participation" is measured by a dummy variable, which equals one if a mother is in the labour force (employed, self-employed or unemployed) and equals zero if she is not. More than four fifths of the observed mothers fulfill one of the criteria of working.¹⁴

The second dependent variable "full-time working" concretises the decision on the amount of working hours and describes therefore the changeover from working less to working more. Therefore, it equals one if the mother works full-time or is self-employed and equals zero if she stays at home or works part-time.¹⁵

There are different possibilities of integrating religiosity as a valid variable of interest in the model. One way is to measure the strength of religious ties by looking at two WVS variables, which are strongly positively correlated with each other.

¹⁴54.3% of these mothers work full time, 15.5% work part time, 4.3% are self employed, 7.9% are unemployed and 18.0% are housewives.

¹⁵A detailed statistical overview of the used variables and further information about the data and variables are shown in the Tables 5-7 in the Appendix.

The first variable captures beliefs relating to the importance of religion in an individual's life. I focus on the answer that religion is very important in life. The second variable asks how often the respondent attends religious services during the year. The focus for this investigation is on mothers who attend religious service at least once a month to measure current religiosity. I combine these two variables by considering only those mothers as being religious who fulfilled the demanded criteria in both questions. The created dummy variable "strong religious ties" is then used as a variable for strong religiosity. About 17% of mothers in the dataset are specified as having strong religious ties (23.1% think that religion is very important in daily life, 27.1% are actively religious) with a high variance among the analysed countries. Figure 3 in the Appendix shows my religiosity variable and compares it to the share of respondents belonging to a denomination. It shows that the Czech Republic and the Scandinavian countries are those countries where mothers are less religious although the denomination rates especially in the Scandinavian countries are relatively high. In contrast, Canada and USA have denomination rates in the middle field but the highest rates of religious mothers. Figure 4 in the Appendix gives an overview of the main denominations mothers belong to in the dataset. We can see that the Scandinavian countries, Australia and New Zealand have mainly protestant mothers. In the Czech Republic, Canada and Spain mothers are predominantly Catholics. In countries like Germany or USA the share of Protestants and Catholics is nearly the same. In USA there is also one third which includes other Christian denominations, Muslims and other religions.

The dataset of family benefits on country level provided by the OECD gives an overview of different public expenditures for families (cash and in kind) over time, measured in percent of GDP. In this sample, 1.2% cash and 0.7% in kind were expended for families per year. Reforms in transfers to families in the specific countries are reflected by increasing or decreasing expenditures. From the macro perspective the amount of benefits a state invests in its families reflects the importance of families and their needs in a country. It can be concluded that investing a lot of money in families means that there is more public discussion about topics like family-work-balance and flexible working conditions for mothers and may imply a transition process in attitudes of society towards the family role of mothers. Furthermore, high benefits can incentivise men and women without children to decide in favour of having children.

Cash investments are predominantly translated into child benefits which increase the budget of the family directly. At this point it is important to mention that these data provided by the OECD do not include the tax splitting issue. Investments in benefits in kind are mainly made in child day care in every analysed country. So I assume that these benefits

improve the infrastructure of childcare and support the families in getting their children a place in the nursery.

I am especially interested in the change of the effect of family benefits on the female labour force participation if mothers differ in their religiosity. Therefore, I include the interaction between religiosity and family benefits as variable of interest in my model.

4.3.2 Control variables

In controlling for mother's socio-demographic factors and different macro variables¹⁶ I follow the relevant literature.

Furthermore, the size of the service sector per country is used because this sector employs women above-average (ILO, 2007). Finally, average religiosity per country (calculated on the basis of the micro variable "strong religious ties") is included to control for possible different levels of answers within a country.

5 Empirical results

5.1 Baseline model without versus with interaction terms

Firstly I present the results of the main interesting variables in the baseline model without and with interaction terms in comparison to the literature and theory. Secondly I discuss the results of the integrated interaction terms. Finally, I present the results of the covariates (see Table 1).

As expected, increasing cash benefits generally has a negative influence on the probability of working of a mother (*ceteris paribus*) in both models. This confirms the theoretical model. The effect is only significant in relation to the decision to work full-time. This means that mothers especially use the possibility of additional public money (income effect) to reduce the amount of full-time work.

There is also evidence for a robust positive significant influence of benefits in kind on the work decision of a mother in both models. This means that public investments in child

¹⁶The selection of the included covariates occurs in consideration of the problem of endogenous variables. Thus, the variables are age, family status, number of children, education, living area, denomination, social class, being chief-earner, living with parents, female unemployment rate, GDP per capita (to measure for wealth and income in a country) and as growth rate (to measure dynamics on the labour market).

day care help mothers decide to work, even more so to work more than part-time. Other papers (e.g. Jaumotte, 2003) and the theoretical model have shown similar results. The absolute value of influence of benefits in kind is bigger than the influence of cash benefits. Religiosity shows also the expected negative sign, which is predicted by my theory. But this result is only significant when interaction terms are integrated in the model. Being religious leads to a decreasing probability of taking part in the labour market. The decision to work full-time is influenced in particular (significant at the one percent level).

Regarding the results of the integrated interaction terms there is firstly significant evidence for a more negative behaviour of religious mothers in comparison to non-religious mothers towards increased cash benefits when it comes to the decision to work full-time. It can be concluded that especially a religious mother uses the additional income for substituting normal income from a full-time job (and takes the opportunity of reducing working time or quitting work). Altogether this supports the mother in daily life in living out her religious attitudes.

Secondly, there is also significant evidence that religious mothers decide less often in favour of labour force participation and full-time work than non-religious mothers if benefits in kind are increased. This means that the group of religious mothers is not as much affected by benefits in kind as the group of non-religious mothers. This is consistent with the model which predicts that the monetary argument of free childcare does not totally convince religious mothers because of their moral standards.

It is remarkable that the effects on full-time work are more significant than those of working generally when family benefits are increased, especially in the case of religious mothers. As the literature confirms, transmitting religious beliefs to children affords presence of the mother in the family (Myers 1996). The underlying moral concepts influence the mother in her decision to work. Working less than full-time is more manageable with her religious philosophy than working the whole day. This can explain the more significant effects.

After analysing the results of the covariates it can generally be determined that most of the effects do not change considerably when interaction terms are included in the model. As in the literature, belonging to a higher class has a positive influence especially on the full-time work decision. Furthermore, a negative significant effect is apparent for 25-34-year-olds and a negative insignificant effect of having a higher number of children as well as higher unemployment rates. Living unmarried or with the parents implies greater probability of taking part in the labour force as well as being chiefearner. The question about a possible influence of belonging to a certain denomination can not be answered

at this point.¹⁷ Regarding the results of the macro variables the positive influence of increasing wealth in a country can be confirmed because higher income-levels denote more incentive to work, also for mothers. This could point to higher employment and earning opportunities for women (Goldin, 1994). In contrast, increasing dynamics in the labour market influence the labour force decision of mothers negatively. A reason could be that more dynamics mean more flexible working arrangements but not necessarily more jobs.¹⁸

Table 1: Baseline probit regression model without vs. with interaction terms (marginal effects)

VARIABLES OF INTEREST	WITHOUT INTERACTION TERMS		WITH INTERACTION TERMS	
	labour force participation	full-time working	labour force participation	full-time working
Family cash benefits (1)	-0.0137 [0.0126]	-0.0717* [0.0315]	-0.0148 [0.0125]	-0.061* [0.0309]
Family benefits in kind (1)	0.0924* [0.0431]	0.301*** [0.0462]	0.107** [0.0411]	0.304*** [0.0383]
Strong religious ties (d,1)	-0.0126 [0.0156]	-0.0867 [0.0447]	-0.035* [.02036]	-0.138*** [.02774]
Strong religious ties x cash benefits (1)			-0.003 [0.0032]	-0.004* [0.0020]
Strong religious ties x benefits in kind (1)			-0.021* [0.0131]	-0.018*** [0.0032]
CONTROL VARIABLES				
25-29 years old (d)	-0.0255 [0.0181]	-0.0643** [0.0211]	-0.0253 [0.0182]	-0.0627** [0.0215]
35-40 years old (d)	0.0121 [0.0147]	0.0196 [0.0244]	0.0119 [0.0146]	0.0185 [0.0240]
Married (d)	0.129 [0.116]	0.298 [0.152]	0.128 [0.116]	0.300 [0.155]
Living unmarried with a partner (d)	0.105** [0.0361]	0.219* [0.108]	0.104** [0.0361]	0.218 [0.112]
Living alone (d)	0.0579 [0.0487]	-0.0116 [0.111]	0.0570 [0.0485]	-0.0122 [0.113]
Number children	-0.0196 [0.0122]	-0.0340 [0.0175]	-0.0194 [0.0123]	-0.0329 [0.0170]

Continued on next page...

¹⁷Although the results indicate that being Catholic or Muslim (other denomination) has much more negative influence on labour force participation than being Protestant. To get a clearer picture of behaviour patterns because of belonging to different confessions it is necessary to make further investigations (see particularly Chapter 5.2.3).

¹⁸An extension of the model by covariates consisting of one variable of interest multiplied with one control variable to get more information about religion (e.g. strong religious ties x number of children) does not change the results significantly. Therefore, these variables are not integrated in the following regressions.

... table 1 continued

	WITHOUT INTERACTION TERMS		WITH INTERACTION TERMS	
	labour force participation	full-time working	labour force participation	full-time working
Low education (ISCED 1/2) (d)	-0.275** [0.0942]	-0.205 [0.146]	-0.279** [0.0976]	-0.232 [0.148]
Middle education (ISCED 3/4) (d)	-0.340** [0.126]	-0.303* [0.135]	-0.346** [0.131]	-0.331* [0.135]
High education (ISCED 5/6) (d)	-0.311** [0.110]	-0.262 [0.136]	-0.315** [0.117]	-0.290* [0.136]
Living in village < 10.000 (d)	-0.0136 [0.0511]	0.132* [0.0556]	-0.0138 [0.0501]	0.132* [0.0534]
Living in city 10.000-500.000 (d)	-0.000451 [0.0339]	0.0829 [0.0522]	-0.00121 [0.0326]	0.0814 [0.0485]
Living in city > 500.000 (d)	0.00285 [0.0326]	0.103 [0.0686]	0.00362 [0.0322]	0.105 [0.0660]
Belonging to upper class (d)	0.0471 [0.0533]	-0.0215 [0.115]	0.0471 [0.0524]	-0.0208 [0.118]
Belonging to middle class (d)	0.0251 [0.0295]	0.111* [0.0554]	0.0237 [0.0286]	0.111* [0.0554]
Belonging to working class (d)	0.0358 [0.0213]	0.0897 [0.0564]	0.0341 [0.0208]	0.0895 [0.0564]
Belonging to lower class (d)	-0.0920 [0.0751]	-0.256** [0.0912]	-0.0969 [0.0743]	-0.257** [0.0900]
Chieffarner (d)	0.265*** [0.0233]	0.536*** [0.0270]	0.263*** [0.0227]	0.538*** [0.0268]
Catholic (d)	-0.0358 [0.0205]	0.0124 [0.0356]	-0.0374 [0.0207]	0.0108 [0.0358]
Protestant (d)	-0.00683 [0.0212]	0.0250 [0.0203]	-0.0112 [0.0212]	0.0188 [0.0199]
Other denomination (d)	-0.0463 [0.0331]	0.00573 [0.0212]	-0.0482 [0.0325]	-0.00113 [0.0221]
Living with parents (d)	0.0554*** [0.0147]	0.120* [0.0517]	0.0562*** [0.0150]	0.124* [0.0517]
Female Unemploymentrate	-0.0172 [0.0107]	-0.0124 [0.0187]	-0.0179 [0.0112]	-0.0152 [0.0184]
Female unemploymentrate x low education	0.0275** [0.00866]	-0.000975 [0.0162]	0.0283** [0.00910]	0.00189 [0.0166]
Female unemploymentrate x middle education	0.0278** [0.00849]	0.0125 [0.0165]	0.0285** [0.00911]	0.0156 [0.0165]
Female unemploymentrate x high education	0.0367*** [0.00891]	0.0165 [0.0150]	0.0374*** [0.00964]	0.0196 [0.0149]
GDP p.a. (% change)	-0.0352** [0.0110]	-0.0481** [0.0181]	-0.0349** [0.0106]	-0.0473** [0.0172]
GDP p.c. in TUSD (PPP)	0.0370** [0.0118]	0.0627*** [0.0165]	0.0366** [0.0115]	0.0617*** [0.0154]
Size service sector (TUSD per working capita)	-15.62* [7.947]	-50.55*** [9.903]	-15.31* [7.783]	-49.52*** [9.206]
Average religiosity per country (strong)	0.271 [0.243]	1.594*** [0.350]	0.271 [0.236]	1.524*** [0.307]
Constant		yes		yes
N		3584		3584

Note: Standard errors in brackets; Marginal effects evaluated at the mean; (1) variables computed as composite effects;

Continued on next page...

... table 1 continued

	WITHOUT INTERACTION TERMS		WITH INTERACTION TERMS	
	labour force participation	full-time working	labour force participation	full-time working
(d) for discrete change of dummy variable from 0 to 1; *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$ (significant variables of interest in bold).				

5.2 Further investigations

5.2.1 Relevance of the age of mothers

Which of the observed effects are only reduced to the analysed age group of mothers (25-40 years)? To answer this question I firstly analyse an expanded dataset of mothers in core working age (25-54 years). Secondly, I take a look only at older mothers (between 40-54 years) who are mainly not involved anymore in caring for young children and belong to an older generation, possibly with different attitudes towards work. All the main results are provided in Table 2, the detailed results in Table 8 in the Appendix.¹⁹

Regarding all three regressions, the main effects remain the same in their signs but change in their significances or magnitudes.

In detail, religiosity plays a negative role for mothers in all age groups but the effect size decreases when observing mothers in the expanded age group 25-54 years. This comes from the fact that mothers of younger age (where the education of young children plays a more important role) are more influenced by their religiosity than mothers of older age when it comes to the work decision.

The negative effect of cash benefits increases a bit if the dataset consists of mothers aged 25 to 54. Responsible for this are mothers between 40 and 54 years who make more use of the additional money to reduce labour force participation (higher income effect) than younger mothers. Religious mothers aged 40 to 54 react also more negatively than younger mothers when cash benefits are increased.

In contrast, more benefits in kind promotes full-time work of 25-40-year-olds in particular. This implies that the improvement of caring institutions is especially important for younger mothers who want to work. Furthermore, the weakened reaction of religious mothers in the case of increasing benefits in kind is also concentrated in this age group. This argues for the importance of parental education of young children. It does not play

¹⁹For more precise results the focus of investigation is on the decision to full-time work.

a role for older mothers.

All in all, the majority of interesting effects are found for mothers between 25-40 years. This fact supports the decision to focus on these data.

Table 2: Probit regression models with different age groups of mothers with regard to full-time working (marginal effects)

VARIABLES OF INTEREST	MOTHERS 25-40	MOTHERS 25-54	MOTHERS 40-54
Family cash benefits (1)	-0.061* [0.0309]	-0.0726*** [0.0203]	-0.107*** [0.0204]
Family benefits in kind (1)	0.304*** [0.0383]	0.170*** [0.0321]	0.0687* [0.0371]
Strong religious ties (d,1)	-0.138*** [.02774]	-0.095*** [0.0220]	-0.064** [0.0296]
Strong religious ties x cash benefits (1)	-0.004* [0.0020]	-0.005** [0.0023]	-0.008** [0.0038]
Strong religious ties x benefits in kind (1)	-0.018*** [0.0032]	-0.0135*** [0.0029]	0.0056 [0.0035]
N	3584	7012	3748

Note: Standard errors in brackets; Marginal effects evaluated at the mean; (1) variables computed as composite effects; (d) for discrete change of dummy variable from 0 to 1; *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$ (significant variables of interest in bold); Empty cells: results not computable.

5.2.2 Alternative measures of religiosity

Are the variables "Religion very important" and "Actively religious" more precise in measuring religiosity than "Strong religious ties"? To get an answer I analyse these variables separately and together (see Guiso et al. 2003) and compare them to the baseline model. All the main results are presented in Table 3, the detailed results in Table 9 in the Appendix.²⁰

The first interesting fact is that the marginal effects of the main variables of the different regressions all have the same signs and they do not differ considerably in significance or magnitude. This implies that the different questions about religion are very robust. Specifically, the single used variable "Religion very important" has stronger effects than the variable "Actively religious". The answer "Religion is very important in my life" has more weight when it comes to the decision to work than the fact of attending religious services regularly.

The second interesting fact is that putting both variables together in one model de-

²⁰For more precise results the focus of investigation lies on the decision to work full-time and I put focus on mothers between 25-40 years.

creases the effects and their significances, especially of the variable "Actively religious". Comparing these results to the baseline model with the variable "Strong religious ties" shows that the variable in the baseline model has stronger effects. The main reason is that this variable requires the fulfilling of both demanded criteria of religiosity and therefore measures religiosity more precisely. Furthermore, it is easier to interpret this one variable than two single used variables. This supports the choice of using this variable.

Table 3: Probit regression models with alternative measures of religiosity (marginal effects)

VARIABLES OF INTEREST	RELIGION VERY IMPORTANT	ACTIVELY RELIGIOUS	BOTH
Family cash benefits (1)	-0.0606* [0.0314]	-0.0601* [0.0348]	-0.059* [0.0335]
Family benefits in kind (1)	0.307*** [0.0327]	0.310*** [0.0392]	0.319*** [0.0336]
Religion very important (d,1)	-0.1105*** [0.0236]		-0.0946*** [0.0264]
Religion very important x cash benefits (1)	-0.0049* [0.0019]		-0.0031* [0.0016]
Religion very important x benefits in kind (1)	-0.0175*** [0.0025]		-0.0165*** [0.0031]
Actively religious (1)		-0.072** [0.0242]	-0.0339 [0.0299]
Actively religious x cash benefits (1)		-0.0032 [0.0212]	-0.0013 [0.0015]
Actively religious x benefits in kind (1)		-0.014*** [0.0043]	0.0072 [0.0060]
N	3584	3584	3584
Note: Standard errors in brackets; Marginal effects evaluated at the mean; (1) variables computed as composite effects; (d) for discrete change of dummy variable from 0 to 1; *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$ (significant variables of interest in bold).			

5.2.3 Different aspects of denomination

Analysing religiosity also means looking at the influences of the different denominations. The first investigation in this context gives additional information about the behaviour of Catholic versus Protestant mothers.²¹ The aim is to determine whether if the denomination of a mother matters regarding her work decision when family benefits are changed. The second investigation examines possible different behaviour patterns of mothers if they live in a predominantly Protestant or Catholic country. Religious majorities could have different influences on the development of society. Splitting up the sample into mothers

²¹Muslim mothers are not analysed because of small number of observations.

living in more Protestant or Catholic countries²² could yield more detailed information. All the main results are provided in Table 4, the detailed results in Table 10 in the Appendix.²³

On the one hand it can be shown that Protestant mothers show the same reactions than mothers in the baseline model but with higher magnitudes. Especially Protestant mothers with strong religious ties reduce their full-time work more than average religious mothers when the state provides family benefits. This is a surprising result because of the rather modern attitudes of the Protestants towards women.²⁴ In contrast, if a country is mainly Protestant a controversial reaction of mothers on the interacted variable "Strong religious ties x cash benefits" can be seen.

On the other hand it can be shown that for Catholic mothers respectively for mothers living in a Catholic area cash benefits are very important. They use the expected income effect of cash benefits (religious Catholics react more intensely) more than the other groups of mothers. Other effects are not verifiable regarding Catholic mothers.

Table 4: Probit regression models with different aspects of denomination with regard to full-time working (marginal effects)

VARIABLES OF INTEREST	DENOMINATION OF MOTHERS		MAIN DENOMINATION IN COUNTRY	
	Catholic	Protestant	Catholic	Protestant
Family cash benefits (1)	-0.3159** [0.1239]	-0.174** [0.0618]	-0.362*** [0.0587]	
Family benefits in kind (1)	0.00559 [0.126]	0.601*** [0.0532]	0.424*** [0.0457]	0.243*** [0.0678]
Strong religious ties (d,1)	-0.0363 [0.0534]	-0.1845*** [0.0455]	-0.1472*** [0.0261]	-0.1244 [0.1102]
Strong religious ties x cash benefits (1)	-0.0048 [0.0051]	-0.0118** [0.0050]	-0.0775*** [0.0229]	0.0381* [0.0196]
Strong religious ties x benefits in kind (1)	0.0001 [0.0020]	-0.0407*** [0.0087]	-0.0261*** [0.0040]	-0.0264* [0.0139]
N	1007	1309	2544	1040

Note: Standard errors in brackets; Marginal effects evaluated at the mean; (1) variables computed as composite effects; (d) for discrete change of dummy variable from 0 to 1; *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$ (significant variables of interest in bold); Catholic countries: CAN, CZE, ESP, Protestant countries: AUS, FIN, GER, NZE, NOR, SWE, USA; Empty cells: results not computable.

²²Protestant countries: Australia, Finland, Germany, New Zealand, Norway, Sweden and USA; Catholic countries: Canada, Czech Republic, Spain.

²³I put focus on mothers between 25-40 years who decide on full-time working.

²⁴At this point it is not differentiated between the different Protestant groups.

6 Summary and Conclusions

The aim of the paper was to analyse the different reactions of mothers depending on their religiosity when family benefits are increased. At this point some interesting effects arise.

Firstly, it can be shown that both religiosity and cash benefits have a negative impact on full-time work of mothers. Secondly, benefits in kind have a positive impact on the decision to participate in the labour market of a mother. Finally, religious mothers decide more often against working in contrast to non-religious mothers if benefits in kind are increased and against working full-time if benefits in general are increased. This means that this group of mothers is not stimulated in the same way as non-religious mothers based on their specific life-philosophy. This effect can be observed especially in the case of opting for full-time work because this decision is hardly compatible with their moral concept. Several robustness checks confirm these results.

Present research shows that religious trends should be considered when designing labour market policies because religious attitudes have (beside other factors) a direct impact on the decision of mothers to join the labour force. Other possible political areas of relevance are the family as well as demographic and integration policies.

Appropriate further research would be a more detailed analysis of the differentiation among religious groups of mothers (especially Protestant and Catholic mothers) and how much these mothers are influenced in their individual work decision by their surroundings (husband, parents etc.).

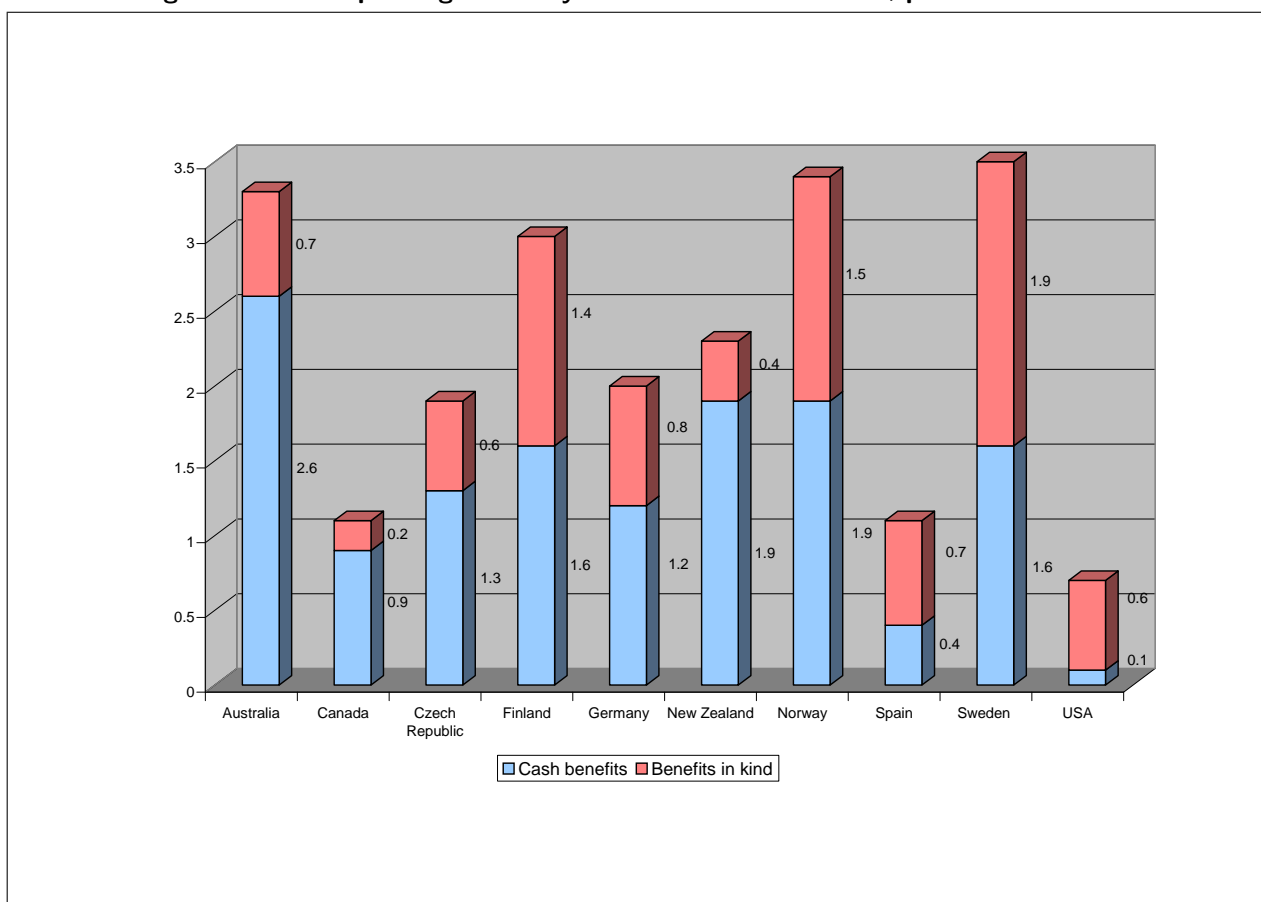
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Appendix

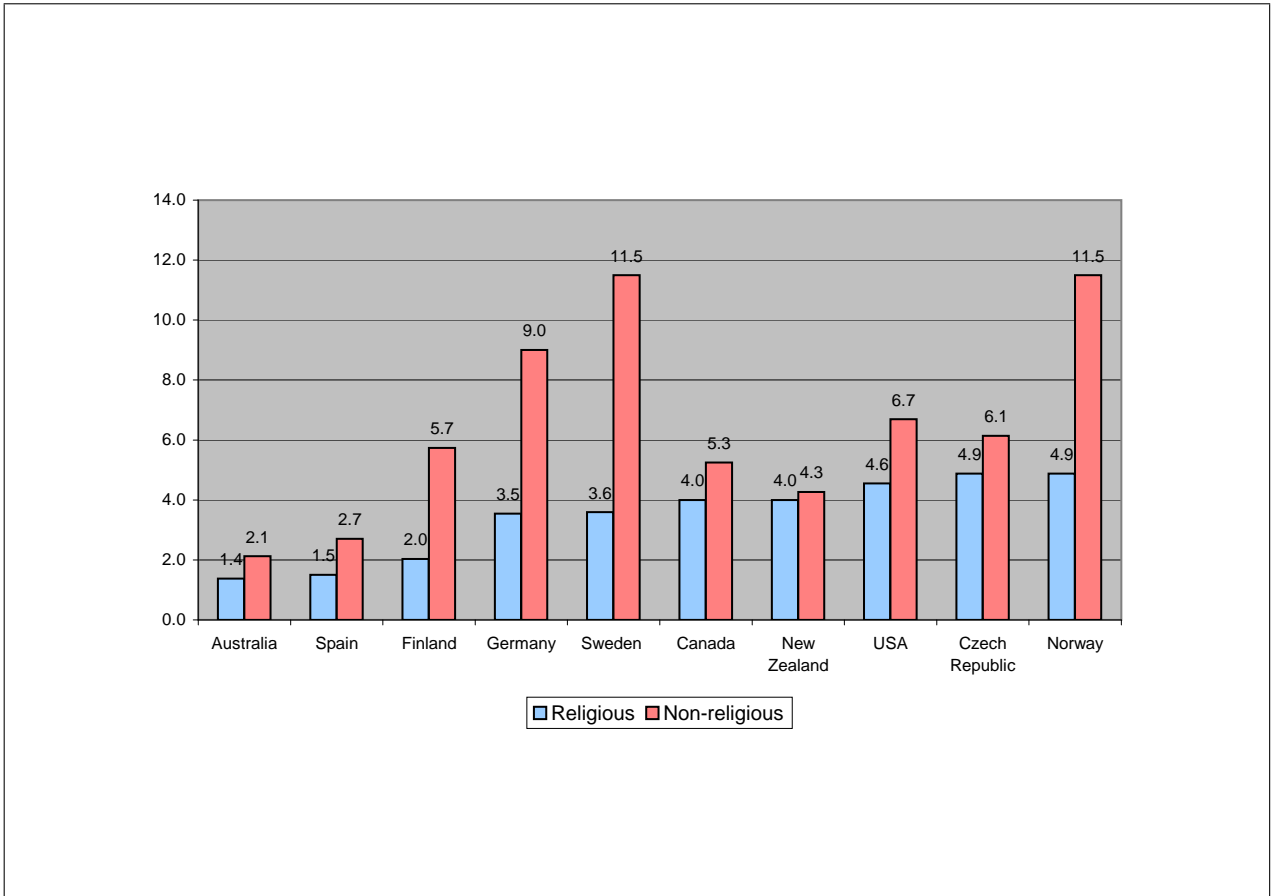
Figure 1: Public spending on family benefits cash and in kind, per GDP 2003



Source: Own calculations based on data of Stat.OECD.

Note: Excludes tax advantages for families with/without children.

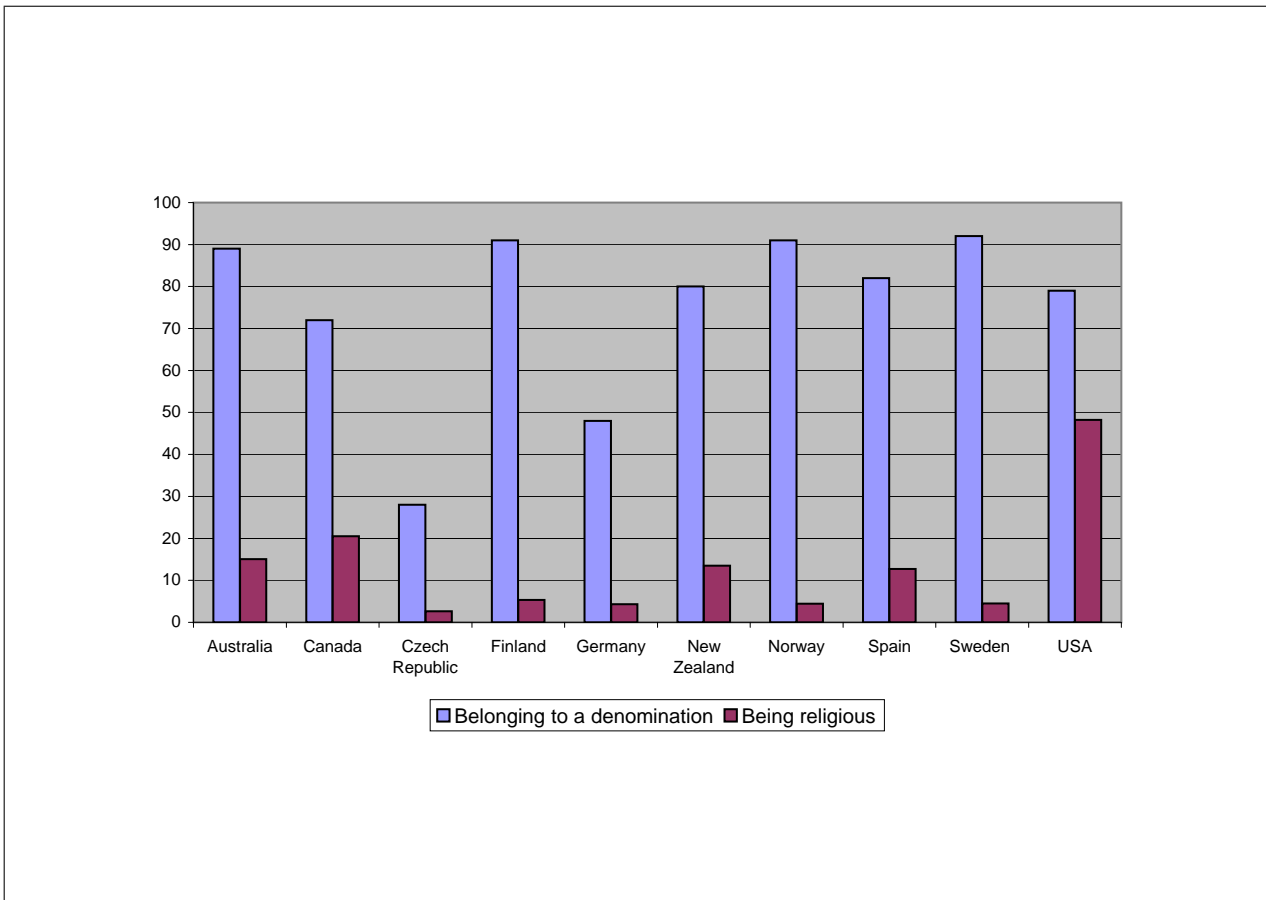
Figure 2: Ratio of working to stay at home mothers depending on religiosity



Source: Own calculations based on data of the World Value Survey (1995-2000).

Note: (1) Only mothers between 25 and 40 years are considered; working includes full-time and part-time working, self-employment, unemployment and being student; stay at home means being housewife, retired or something else. - (2) Definition of being religious see Chapter 4.3.

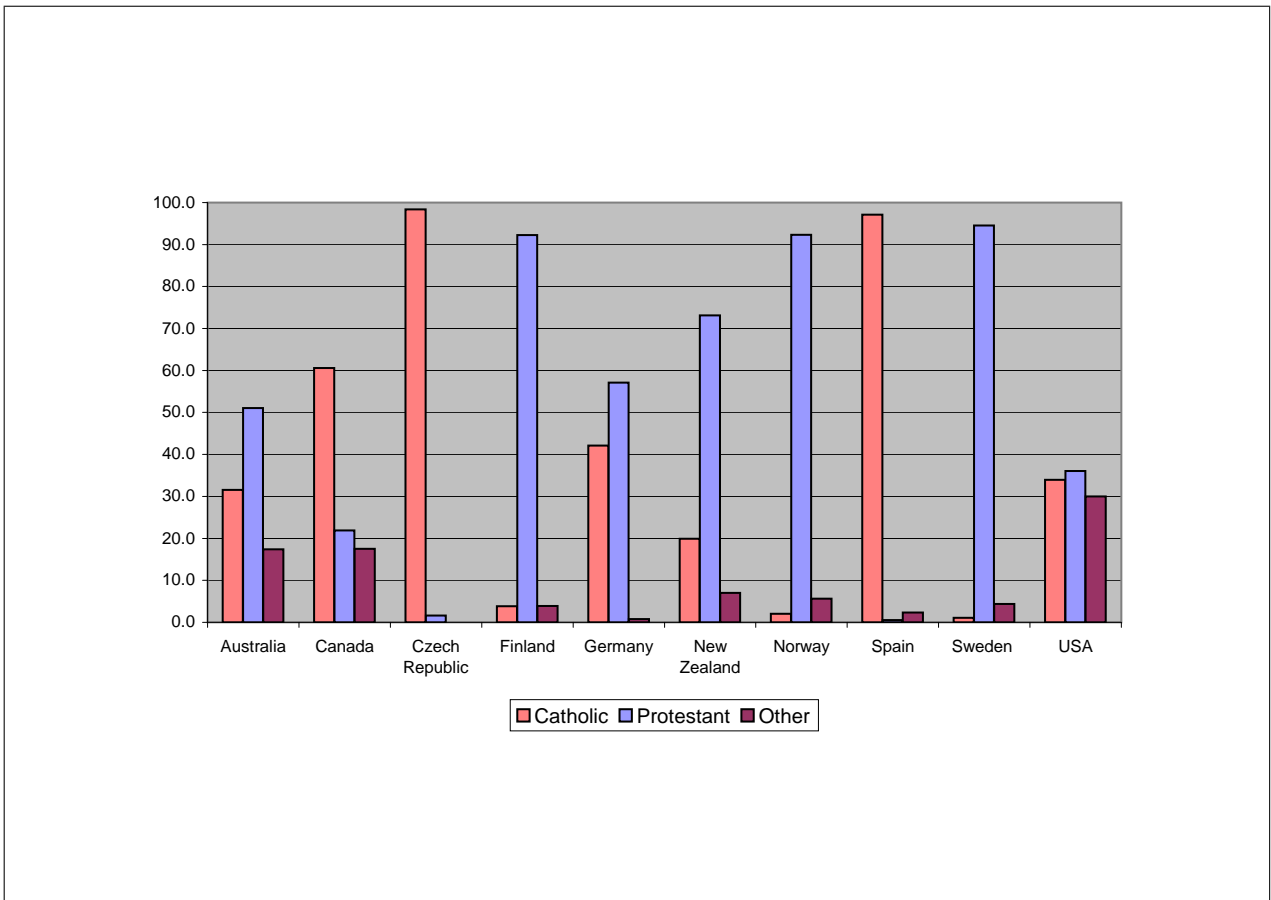
Figure 3: Mothers and their religious basis, per country



Source: Own calculations based on data of the World Value Survey (1995-2000).

Note: (1) Only mothers between 25 and 40 years are considered. - (2) Definition of being religious see Chapter 4.3.

Figure 4: Main denominations mothers belong to, per country



Source: Own calculations based on data of the World Value Survey (1995-2000).

Note: (1) Only mothers between 25 and 40 years are considered. - (2) Definition of being religious see Chapter 4.3.

Figure 5: Family cash benefits: Maximization problem

The FOC's look as the following:

- (1) $\epsilon/c - \lambda \equiv 0$,
- (2) $\beta/l_w - \lambda w_w \equiv 0$,
- (3) $\gamma/(e_n + e_w) - \lambda w_n \equiv 0$,
- (4) $\gamma/(e_n + e_w) + R/e_w - \lambda w_w \equiv 0$,
- (5) $w_w + w_m + I - c - w_w(l_w + e_w) - w_n e_n \equiv 0$.

By solving this maximization problem, I can derive the (optimal) caring time of mother and nanny as well as leisure time of the mother, as

$$e_w = \frac{R(w_m + w_w + I)}{(w_w - w_n)}.$$

$$e_n = \frac{(w_m + w_w + I)(\gamma(w_w/w_n - 1) - R)}{(w_w - w_n)}.$$

$$l_w = \frac{\beta(w_m + w_w + I)}{w_w}.$$

Figure 6: Family benefits in kind: Maximization problem

The FOC's look as the following:

- (1) $\epsilon/c - \lambda \equiv 0$,
- (2) $\beta/l_w - \lambda w_w \equiv 0$,
- (3) $\gamma/(\bar{e} + e_n + e_w) - \lambda w_n \equiv 0$,
- (4) $\gamma/(\bar{e} + e_n + e_w) + R/e_w - \lambda w_w \equiv 0$,
- (5) $w_w + w_m - c - w_w(l_w + e_w) - w_n e_n \equiv 0$.

By solving this maximization problem, I can derive the (optimal) caring time of mother and nanny as well as leisure time of the mother, as

$$e_w = \frac{R(w_w + w_m - \bar{e}w_n(\frac{1-\gamma-R}{\gamma}))}{w_w - w_n}.$$

$$e_n = \frac{w_w + w_m - \bar{e}w_n(\frac{1-\gamma-R}{\gamma})(\gamma(w_w/w_n - 1) - R)}{w_w - w_n}$$

$$l_w = \frac{\beta(\bar{e}w_n(1 + R/\gamma) + w_w + w_m)}{w_w}.$$

Table 5: Summary statistics

Variable	Mean	Std. Dev.	Min.	Max.
Labour force participation	0.821	0.384	0	1
Full-time working	0.586	0.493	0	1
Family cash benefits	1.248	0.816	0.1	2.4
Family benefits in kind	0.696	0.473	0.1	1.9
Strong religious ties	0.166	0.372	0	1
25-29 years old	0.201	0.401	0	1
30-34 years old	0.336	0.472	0	1
35-40 years old	0.463	0.499	0	1
Married	0.67	0.47	0	1
Living unmarried with a partner	0.121	0.326	0	1
Living alone	0.206	0.404	0	1
Familystatus missings	0.003	0.058	0	1
Number children	1.938	0.758	0	3
Number children missings	0.009	0.093	0	1
Low education (ISCED 1/2)	0.477	0.5	0	1
Middle education (ISCED 3/4)	0.223	0.417	0	1
High education (ISCED 5/6)	0.288	0.453	0	1
Education missings	0.011	0.106	0	1
Living in village < 10.000	0.19	0.392	0	1
Living in city 10.000-500.000	0.247	0.431	0	1
Living in city > 500.000	0.307	0.461	0	1
Living missings	0.257	0.437	0	1
Belonging to upper class	0.007	0.083	0	1
Belonging to middle class	0.570	0.495	0	1
Belonging to working class	0.314	0.464	0	1
Belonging to lower class	0.051	0.22	0	1
Belonging to class missings	0.058	0.234	0	1
Chieffearner	0.503	0.5	0	1
Chieffearner missings	0.047	0.211	0	1
Catholic	0.281	0.45	0	1
Protestant	0.365	0.482	0	1
Other denomination	0.076	0.266	0	1
Denomination missings	0.277	0.448	0	1
Living with parents	0.049	0.215	0	1
Living with parents missings	0.006	0.076	0	1
Female Unemploymentrate	6.285	3.472	2.632	15.561
GDP p.a. (% change)	3.013	1.866	-1	5.23
GDP p.c. in TUSD (PPP)	23.323	4.919	13.965	32.994
Size service sector (TUSD per working capita)	0.035	0.009	0.018	0.055
Average religiosity per country (strong)	0.167	0.157	0.026	0.515
N			3584	

Note: Observations per country per year (mothers 25-40 years): AUS 431 (1995), CAN 390 (2000), CZE 228 (1998), FIN 226 (1996), GER 552 (1997), NZE 237 (1998), NOR 270 (1996), ESP 219 (1995) 203 (2000), SWE 200 (1996), USA 356 (1995) 272 (1999).

Table 6: Details on the used variables

Variable	Description	Source
Labour force participation	= 1 if mother is employed, self-employed, unemployed or a student =0 if mother is housewife, retired or something else.	WVS, data extracted on 07/27/09

Continued on next page...

... table 6 continued

Variable	Description	Source
Full-time working	= 1 if mother works full-time or is self-employed =0 if mother works part-time, is housewife, retired, a student or something else.	WVS, data extracted on 07/27/09
Family benefits cash and in kind	Public expenditures cash and in kind for families as a percentage of GDP	OECD.Stat, data extracted on 07/29/09
Strong religious ties	=1 if religion is very important for mother and if she attends religious services more than once a month	WVS, data extracted on 07/27/09
Female unemployment rate	Women between 25 to 54 years	OECD.Stat, data extracted on 07/29/09
GDP annually (% change)	Growth rate measured in percent	OECD.Stat, data extracted on 07/29/09
GDP per capita	Measured in per head, USD, current prices, current PPPs	OECD.Stat, data extracted on 07/29/09
Size service sector	Transactions in service sector (trade, repair, hotels, restaurants, financial intermediation, real estate, renting and business activities, other service activities), USD PPP per working capita (25-54 years old)	OECD.Stat, data extracted on 07/29/09
Average religiosity per country (strong)	Own calculations based on micro variable strong religious ties	WVS, data extracted on 07/27/09
Weighting factor	Provide a 4-digit weight variable to correct sample to reflect national distributions of key variables. It is especially important to correct for education. For example, if the sample contains twice as many university-educated respondents as there are in the adult population as a whole, members of this group should be given a weight of .5.	WVS, data extracted on 07/27/09

Table 7: Description of used questions of the World Value Survey

Original Question	Possible Answers	Variables
Are you employed now or not? If yes, about how many hours a week? If more than one job: only for the main job.	1)Full time employee (30 hours a week or more) 2)Part time employee (less than 30 hours a week) 3)Self employed 4)Retired/pensioned 5)Housewife not otherwise employed 6)Student 7)Unemployed 8)Other	Labour force participation Full-time working
How important is religion in your life?	1)Very important 2)Important 3)Not very important 4)Not important	Strong religious ties
Apart from weddings and funerals, about how often do you attend religious services these days?	1)More than once a month 2)Only on special holy days 3)Once a year 4)Less often/ never, practically never	Strong religious ties
Can you tell me your year of birth, please? This means you are how many years old?		25-29 years old 30-34 years old 35-40 years old

Continued on next page...

... table 7 continued

Original Question	Possible Answers	Variables
Are you currently...	1)Married 2)Living together as married 3)Divorced 4)Separated 5)Widowed 6)Single	Married Living unmarried with a partner Living alone
Have you had any children?	0)No children 1)One child 2)Two children 3)Three children 4)Four children 5)Five children 6)Six children 7)Seven children 8)Eight or more children	Number children
What is the highest educational level that you have attained?	1. No formal education 2. Incomplete primary school 3. Complete primary school 4. Incomplete secondary school: technical/vocational type 5. Complete secondary school: technical/vocational type 6. Incomplete secondary: university-preparatory type 7. Complete secondary: university-preparatory type 8. Some university-level education, without degree 9. University-level education, with degree	Low education (ISCED 1/2) Middle education (ISCED 3/4) High education (ISCED 5/6)
People sometimes describe themselves as belonging to the working class, the middle class, or the upper or lower class. Would you describe yourself as belonging to the:	Upper class Upper middle class Lower middle class Working class Lower class	Belonging to upper class Belonging to middle class Belonging to working class Belonging to lower class
Size of town	1 Under 2,000 2 2,000 - 5,000 3 5 - 10,000 4 10 - 20,000 5 20 - 50,000 6 50 - 100,000 7 100 - 500,000 8 500,000 and more	Living in village < 10.000 Living in city 10.000-500.000 Living in city > 500.000
Do you belong to a religion or religious denomination? If yes, which one?	No: 0)do not belong to a denomination Yes: 1)Roman Catholic 2)Protestant 3)Orthodox (Russian/Greek/etc.) 4)Jew 5)Muslim 6)Hindu 7)Buddhist 8)Other	Catholic Protestant Other
Are you the chief wage earner in your household?	1)Yes 2)No	Chieffearner

Continued on next page...

... table 7 continued

Original Question	Possible Answers	Variables
Do you live with your parents?	1)Yes 2)No	Living with parents

Table 8: Probit regression models with different age groups of mothers with regard to full-time working (marginal effects)

VARIABLES OF INTEREST	MOTHERS 25-40	MOTHERS 25-54	MOTHERS 40-54
Family cash benefits (1)	-0.061* [0.0309]	-0.0726*** [0.0203]	-0.107*** [0.0204]
Family benefits in kind (1)	0.304*** [0.0383]	0.170*** [0.0321]	0.0687* [0.0371]
Strong religious ties (d,1)	-0.138*** [.02774]	-0.095*** [0.0220]	-0.064** [0.0296]
Strong religious ties x cash benefits (1)	-0.004* [0.0020]	-0.005** [0.0023]	-0.008** [0.0038]
Strong religious ties x benefits in kind (1)	-0.018*** [0.0032]	-0.0135*** [0.0029]	0.0056 [0.0035]
CONTROL VARIABLES			
25-29 years old (d)	-0.0627** [0.0215]	-0.0627* [0.0288]	0.0291 [0.0151]
35-40 years old (d)	0.0185 [0.0240]	-0.0218 [0.0172]	-0.0551** [0.0188]
Married (d)	0.300 [0.155]	0.211* [0.0963]	0.0839 [0.101]
Living unmarried with a partner (d)	0.218 [0.112]	0.127 [0.0693]	-0.00280 [0.0962]
Living alone (d)	-0.0122 [0.113]	-0.0949 [0.0755]	-0.210 [0.112]
Number children	-0.0329 [0.0170]	-0.0268 [0.0145]	-0.0210 [0.0163]
Low education (ISCED 1/2) (d)	-0.232 [0.148]	0.127 [0.0835]	0.541** [0.209]
Middle education (ISCED 3/4) (d)	-0.331* [0.135]	0.0976 [0.0690]	0.396*** [0.0971]
High education (ISCED 5/6) (d)	-0.290* [0.136]	0.145* [0.0717]	0.495*** [0.120]
Living in village <10.000 (d)	0.132* [0.0534]	0.00389 [0.0477]	-0.109** [0.0409]
Living in city 10.000-500.000 (d)	0.0814 [0.0485]	-0.0369 [0.0348]	-0.149** [0.0481]
Living in city >500.000 (d)	0.105 [0.0660]	-0.0160 [0.0396]	-0.117** [0.0359]
Belonging to upper class (d)	-0.0208 [0.118]	0.0179 [0.0752]	-0.00327 [0.0488]
Belonging to middle class (d)	0.111* [0.0554]	0.0710 [0.0443]	0.0264 [0.0584]
Belonging to working class (d)	0.0895 [0.0564]	0.0531 [0.0464]	0.0108 [0.0639]
Belonging to lower class (d)	-0.257** [0.0900]	-0.254*** [0.0771]	-0.261** [0.0919]
Chiefearner (d)	0.538***	0.510***	0.490***

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... table 8 continued

	MOTHERS 25-40	MOTHERS 25-54	MOTHERS 40-54
Catholic (d)	[0.0268] 0.0108 [0.0358]	[0.0301] -0.0275 [0.0279]	[0.0388] -0.0512 [0.0379]
Protestant (d)	0.0188 [0.0199]	0.00802 [0.0197]	-0.00628 [0.0275]
Other denomination (d)	-0.00113 [0.0221]	-0.0478 [0.0326]	-0.0856 [0.0441]
Living with parents (d)	0.124* [0.0517]	0.0666 [0.0518]	-0.00732 [0.0622]
Female Unemploymentrate	-0.0152 [0.0184]	0.0245 [0.0126]	0.0893 [0.0479]
Female unemploymentrate x low education	0.00189 [0.0166]	-0.0442*** [0.00965]	-0.123** [0.0470]
Female unemploymentrate x middle education	0.0156 [0.0165]	-0.0362*** [0.00975]	-0.120* [0.0490]
Female unemploymentrate x high education	0.0196 [0.0149]	-0.0322** [0.0101]	-0.116* [0.0466]
GDP p.a. (% change)	-0.0473** [0.0172]	-0.0186 [0.0138]	0.0140 [0.0121]
GDP p.c. in TUSD (PPP)	0.0617*** [0.0154]	0.0337** [0.0117]	0.00547 [0.0116]
Size service sector (TUSD per working capita)	-49.52*** [9.206]	-24.59*** [6.594]	-5.809 [7.451]
Average religiosity per country (strong)	1.524*** [0.307]	0.527* [0.212]	-0.349 [0.224]
Constant	yes	yes	yes
N	3584	7012	3748

Note: Standard errors in brackets; Marginal effects evaluated at the mean; (1) variables computed as composite effects; (d) for discrete change of dummy variable from 0 to 1; *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$ (significant variables of interest in bold); Empty cells: results not computable.

Table 9: Probit regression models with alternative measures of religiosity (marginal effects)

VARIABLES OF INTEREST	RELIGION VERY IMPORTANT	ACTIVELY RELIGIOUS	BOTH
Family cash benefits (1)	-0.0606* [0.0314]	-0.0601* [0.0348]	-0.059* [0.0335]
Family benefits in kind (1)	0.307*** [0.0327]	0.310*** [0.0392]	0.319*** [0.0336]
Religion very important (d,1)	-0.1105*** [0.0236]		-0.0946*** [0.0264]
Religion very important x cash benefits (1)	-0.0049* [0.0019]		-0.0031* [0.0016]
Religion very important x benefits in kind (1)	-0.0175*** [0.0025]		-0.0165*** [0.0031]
Actively religious (1)		-0.072** [0.0242]	-0.0339 [0.0299]
Actively religious x cash benefits (1)		-0.0032 [0.0212]	-0.0013 [0.0015]
Actively religious x benefits in kind (1)		-0.014*** [0.0043]	0.0072 [0.0060]
25-29 years old (d)	-0.0620** [0.0226]	-0.0632** [0.0224]	-0.0627** [0.0229]

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... table 9 continued

	RELIGION VERY IMPORTANT	ACITVELY RELI- GIOUS	BOTH
35-40 years old (d)	0.0196 [0.0238]	0.0209 [0.0237]	0.0198 [0.0235]
Married (d)	0.302 [0.157]	0.310* [0.153]	0.305 [0.156]
Living unmarried with a partner (d)	0.219 [0.113]	0.226* [0.108]	0.219 [0.113]
Living alone (d)	-0.00695 [0.115]	-0.00273 [0.111]	-0.00650 [0.115]
Number children	-0.0335 [0.0173]	-0.0349* [0.0176]	-0.0331 [0.0173]
Low education (ISCED 1/2) (d)	-0.215 [0.150]	-0.208 [0.146]	-0.219 [0.151]
Middle education (ISCED 3/4) (d)	-0.316* [0.138]	-0.308* [0.134]	-0.320* [0.138]
High education (ISCED 5/6) (d)	-0.277* [0.138]	-0.267* [0.136]	-0.278* [0.140]
Living in village <10.000 (d)	0.129* [0.0532]	0.135** [0.0516]	0.132* [0.0514]
Living in city 10.000-500.000 (d)	0.0758 [0.0480]	0.0853 [0.0499]	0.0793 [0.0488]
Living in city >500.000 (d)	0.101 [0.0644]	0.107 [0.0668]	0.104 [0.0650]
Belonging to upper class (d)	-0.0255 [0.113]	-0.0334 [0.114]	-0.0280 [0.114]
Belonging to middle class (d)	0.108 [0.0556]	0.112* [0.0560]	0.108 [0.0560]
Belonging to working class (d)	0.0852 [0.0564]	0.0911 [0.0562]	0.0855 [0.0563]
Belonging to lower class (d)	-0.257** [0.0886]	-0.255** [0.0901]	-0.257** [0.0884]
Chieffearner (d)	0.537*** [0.0275]	0.536*** [0.0268]	0.537*** [0.0273]
Catholic (d)	0.0102 [0.0349]	0.0134 [0.0308]	0.0144 [0.0318]
Protestant (d)	0.0170 [0.0194]	0.0133 [0.0169]	0.0184 [0.0182]
Other denomination (d)	0.00108 [0.0237]	-0.0110 [0.0217]	0.00447 [0.0227]
Living with parents (d)	0.122* [0.0520]	0.122* [0.0536]	0.123* [0.0529]
Female Unemploymentrate	-0.0153 [0.0186]	-0.0131 [0.0187]	-0.0156 [0.0187]
Female unemploymentrate x low education	0.00110 [0.0166]	-0.000337 [0.0163]	0.00152 [0.0168]
Female unemploymentrate x middle education	0.0149 [0.0167]	0.0139 [0.0163]	0.0155 [0.0167]
Female unemploymentrate x high education	0.0195 [0.0149]	0.0177 [0.0149]	0.0197 [0.0151]
GDP p.a. (% change)	-0.0456** [0.0170]	-0.0484** [0.0172]	-0.0466** [0.0167]
GDP p.c. in TUSD (PPP)	0.0605*** [0.0148]	0.0619*** [0.0157]	0.0607*** [0.0149]
Size service sector (TUSD per working capita)	-48.86***	-49.17***	-48.74***

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... table 9 continued

	RELIGION VERY IMPORTANT	ACTIVELY RELIGIOUS	BOTH
Average religiosity per country (strong)	[8.771] 1.504*** [0.300]	[9.497] 1.487*** [0.318]	[9.070] 1.498*** [0.312]
Constant	yes	yes	yes
N	3584	3584	3584

Note: Standard errors in brackets; Marginal effects evaluated at the mean; (1) variables computed as composite effects; (d) for discrete change of dummy variable from 0 to 1; *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$ (significant variables of interest in bold).

Table 10: Probit regression models with different aspects of denomination with regard to full-time working (marginal effects)

VARIABLES OF INTEREST	DENOMINATION OF MOTHERS		MAIN DENOMINATION IN COUNTRY	
	Catholic	Protestant	Catholic	Protestant
Family cash benefits (1)	-0.3159** [0.1239]	-0.174** [0.0618]	-0.362*** [0.0587]	
Family benefits in kind (1)	0.00559 [0.126]	0.601*** [0.0532]	0.424*** [0.0457]	0.243*** [0.0678]
Strong religious ties (d,1)	-0.0363 [0.0534]	-0.1845*** [0.0455]	-0.1472*** [0.0261]	-0.1244 [0.1102]
Strong religious ties x cash benefits (1)	-0.0048 [0.0051]	-0.0118** [0.0050]	-0.0775*** [0.0229]	0.0381* [0.0196]
Strong religious ties x benefits in kind (1)	0.0001 [0.0020]	-0.0407*** [0.0087]	-0.0261*** [0.0040]	-0.0264* [0.0139]
CONTROL VARIABLES				
25-29 years old (d)	0.0337 [0.0467]	-0.0710 [0.0467]	-0.0640* [0.0315]	-0.0216 [0.0262]
35-40 years old (d)	0.0663*** [0.0196]	-0.0263 [0.0301]	0.00408 [0.0241]	0.0860 [0.0452]
Married (d)	0.140 [0.363]	0.582* [0.257]	0.302 [0.159]	0.0471 [0.378]
Living unmarried with a partner (d)	0.0180 [0.342]	0.408** [0.134]	0.221 [0.120]	-0.0420 [0.378]
Living alone (d)	-0.136 [0.320]	0.251 [0.267]	-0.00391 [0.115]	-0.302 [0.366]
Number children	-0.0491 [0.0284]	-0.0202 [0.0233]	-0.0208 [0.0207]	-0.0607 [0.0375]
Low education (ISCED 1/2) (d)	-0.391** [0.140]	-0.00926 [0.246]	-0.210 [0.159]	
Middle education (ISCED 3/4) (d)	-0.548*** [0.131]	-0.0246 [0.291]	-0.302 [0.164]	
High education (ISCED 5/6) (d)	-0.454*** [0.134]	-0.0624 [0.251]	-0.175 [0.147]	
Living in village <10.000 (d)	-0.364* [0.154]	0.259*** [0.0312]	0.0469 [0.0703]	
Living in city 10.000-500.000 (d)	-0.384** [0.148]	0.261*** [0.0418]	0.00556 [0.0505]	-0.0698** [0.0226]
Living in city >500.000 (d)	-0.357* [0.177]	0.275*** [0.0518]	0.0366 [0.0868]	-0.0313 [0.0516]
Belonging to upper class (d)	-0.153 [0.197]	0.116 [0.0741]	0.0867 [0.133]	-0.428* [0.181]

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... table 10 continued

	DENOMINATION OF MOTHERS		MAIN DENOMINATION IN COUNTRY	
	Catholic	Protestant	Catholic	Protestant
Belonging to middle class (d)	0.0306 [0.100]	0.102 [0.0608]	0.158** [0.0521]	-0.136 [0.0924]
Belonging to working class (d)	-0.00292 [0.0978]	-0.208 [0.161]	0.150** [0.0483]	-0.198* [0.0785]
Belonging to lower class (d)	-0.273* [0.110]	0.531*** [0.0422]	-0.220* [0.103]	-0.486*** [0.0590]
Chiefearner (d)	0.568*** [0.0237]	0.0948 [0.0871]	0.549*** [0.0306]	0.503*** [0.0421]
Catholic (d)			-0.0488 [0.0323]	0.0992*** [0.0193]
Protestant (d)			-0.0205* [0.00961]	0.114*** [0.0262]
Other denomination (d)			-0.00454 [0.0264]	-0.0281 [0.0452]
Living with parents (d)	0.0780 [0.0703]	-0.00297 [0.0551]	0.108 [0.0832]	0.168*** [0.0457]
Female Unemploymentrate	-0.0859* [0.0403]	-0.0399 [0.0551]	-0.0746** [0.0231]	-0.773*** [0.0270]
Female unemploymentrate x low education	0.0149 [0.0168]	-0.0367 [0.0592]	0.00760 [0.0229]	0.743*** [0.0237]
Female unemploymentrate x middle education	0.0376 [0.0218]	-0.0253 [0.0548]	0.0136 [0.0264]	0.748*** [0.0243]
Female unemploymentrate x high education	0.0375* [0.0190]	-0.0843*** [0.0149]	0.00696 [0.0207]	0.770*** [0.0233]
GDP p.a. (% change)	0.0408 [0.0455]	0.111*** [0.0141]	-0.00105 [0.0177]	
GDP p.c. in TUSD (PPP)	-0.0163 [0.0443]	-121.2*** [9.876]	0.0553*** [0.00964]	0.000483 [0.00144]
Size service sector (TUSD per working capita)	3.794 [30.32]	3.430*** [0.296]	-90.43*** [10.09]	
Average religiosity per country (strong)	-0.863 [1.290]	0.276*** [0.0309]	1.881*** [0.314]	
Constant	yes	yes	yes	yes
N	1007	1309	2544	1040

Note: Standard errors in brackets; Marginal effects evaluated at the mean; (1) variables computed as composite effects; (d) for discrete change of dummy variable from 0 to 1; *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$ (significant variables of interest in bold); Catholic countries: CAN, CZE, ESP, Protestant countries: AUS, FIN, GER, NZE, NOR, SWE, USA; Empty cells: results not computable.

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